

Local Green Building Initiatives in Northern California

Build It Green Public Agency Council Member Survey Results



Final

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I. Introduction

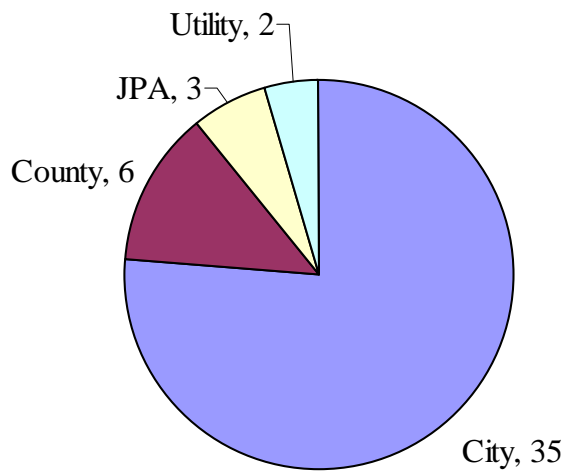
This report summarizes results of the Build It Green Public Agency Council member survey fielded in late 2005. The report is intended to serve as a resource tool for Council members and policy makers seeking information about public agency green building programs in Northern California and particularly the San Francisco Bay Area. The intent of the survey was to

- (1) Identify model practices for green building initiatives in the public sector;
- (2) Facilitate the exchange of information resources and experiences between agencies; and
- (3) Benchmark the current state of green building in the public sector.

This report should not be interpreted as a comprehensive or general study of all public agencies in Northern California. The agencies contacted represent a small fraction of all public agencies in the region and they were not selected at random. Rather, they were contacted due to their participation in the Public Agency Council and their leadership in advancing green building in their communities.

A total of 46 public agencies responded to the Public Agency Council survey, including virtually all agencies with longstanding green building initiatives in the region. Most respondents were cities but counties, joint powers authorities (JPAs), and utilities are also represented. The City/County of San Francisco was coded as a county for tally purposes. Likewise, City of Palo Alto was coded as a utility to distinguish it from cities that do not provide utility services.

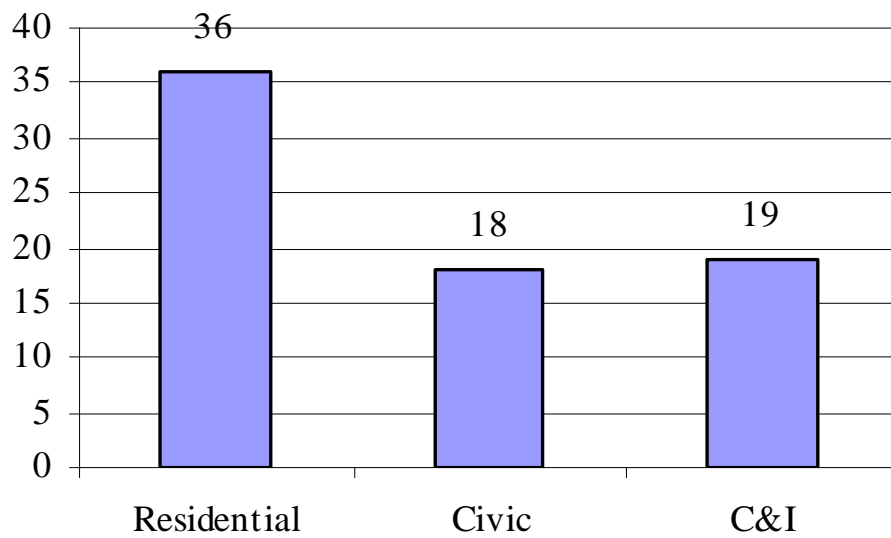
Three agencies, Green Building in Alameda County, County of Contra Costa, and County of San Mateo, have been particularly proactive in supporting green building initiatives among member cities within their agency jurisdictions. Those agencies were able to provide additional information about green building initiatives among agencies that were not surveyed. That information is generally incorporated into the report narrative, though not in the statistical tabulations.

Figure 1. Number of Survey Responses, by Agency Type

The survey tool was organized into four main sections. The first three sections examined initiatives in the residential, civic, and commercial and industrial (C&I) sectors. The concluding section reviewed program resources and implementation. Due to time and resource constraints, the survey probed into more detail for the residential section, which explored public agency policies, incentives, and educational initiatives. The civic section focused on relevant agency policies while the C&I section addressed agency policies and incentives.

Of the 46 agencies surveyed, 39 indicated that they currently have some type of green building-related initiative in place or under development, whether in the residential, commercial, or civic sector. The number of initiatives by sector is shown in Figure 2. The commercial/industrial sector is shortened to C&I.

Figure 2. Number of Programs and Initiatives by Sector



II. Residential Sector Results

As Table 1 illustrates, educational programs or initiatives are the most common public agency approach to residential green building. This may be because educational initiatives can often be implemented by staff within their scope of their existing duties. For agencies considering green building for the first time, informal education initiatives are a good place to start because they can start small and then scale up as community priorities and resources permit. They create an opportunity to educate agency staff and policy makers and they help increase green building capacity in the community, which can translate into a set of stakeholders supportive of more formal policies and incentives.

Formal policies require a more involved development process that engages the agency policy-making body, senior management, and the community so it is not surprising that fewer agencies have adopted policies than have initiated education activities. On the other hand, policy-making is a core public agency function and policies do not automatically entail substantial staff and financial resources to implement. Incentives generally must compete with other agency priorities for access to limited financial and staff resources so one would expect that category to rank lowest in terms of agency adoption rates.

Table 1. Residential Initiatives by Agency and Initiative Type

Agency Type	Agencies with Res Policies	Agencies with Res Incentives	Agencies with Res Education Programs	Total Agencies with Res Initiatives	Total Agencies Surveyed
City	16	4	26	28	35
County	3	1	5	5	6
JPA	1	1	2	2	3
Utility	1	2	2	2	2
Total	21	8	35	37	46

Residential-Sector Policies

Policy Development Phase

We asked respondents to characterize their residential-sector policies as one of three developmental phases:

- **Planning:** policy content is still being developed or finalized.
- **Initial:** policy has been developed but is in early stages of implementation, perhaps in a pilot phase. Policy results or efficacy are not yet known.
- **Established:** Policy has been fully implemented and reviewed for efficacy.

Twenty agencies have policy initiatives in the established or initial stage of development. Of those, three agencies are counties, one is a JPA, one is a utility, and the remainder are cities. Ten additional agencies are planning to adopt a residential green building policy in the reasonably near future.

Table 2. Residential Policy Development Stage

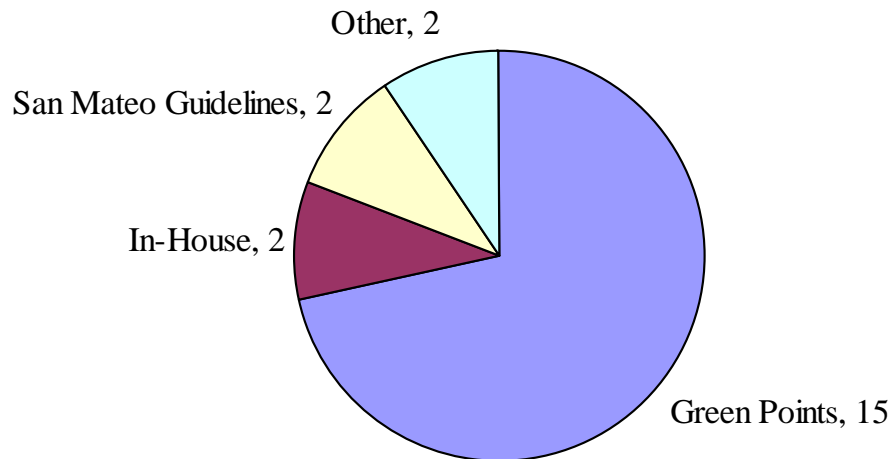
Agency	Established	Initial	Planning
City of Antioch		✓	
City of Berkeley	✓		
City of Brentwood		✓	
City of Brisbane			✓
City of Cotati	✓		
City of Dublin		✓	
City of Emeryville		✓	
City of Livermore		✓	
City of Novato	✓		
City of Oakland			✓
City of Pacifica			✓
City of Palo Alto Utility		✓	
City of Pleasanton		✓	
City of Rohnert Park		✓	
City of Sacramento			✓
City of San Jose	✓		
City of San Leandro			✓
City of San Mateo			✓
City of Santa Rosa	✓		
City of Sebastopol	✓		
City of Sunnyvale	✓		
City of Union City			✓
City of Winters		✓	
County of Contra Costa		✓	
County of Marin	✓		
County of San Mateo	✓		
County/City of San Francisco			✓
Green Building in Alameda County	✓		
Town of Portola Valley	✓		
Truckee-Donner PUD			✓
Total	11	10	9

Residential Policy Definitions of “Green”

An essential element of a sound policy is a clear definition of “green.” A relatively detailed set of guidelines is a common approach to defining “green” in operational terms.

Figure 3 summarizes the types of green guidelines agencies reference in support of their policies.

Figure 3. Residential Guidelines Referenced by Agency Policies



All twenty-one policy initiatives reference guidelines in some fashion and eighteen of twenty refer specifically to green building guidelines. The City of Winters' policy initiative incorporates a photovoltaic requirement and references ENERGY STAR energy efficiency standards.

Housing Types and Industry Segments

All housing types and industry segments are well represented among agency policies.

Table 3. Housing Types and Industry Segments Addressed

Housing Types and Industry Segments	Number of Policies
Single-family Remodel	14
Single-family New Construction	18
Multifamily Remodel	13
Multifamily New Construction	17
Total policy initiatives	21

Residential Policy Types

The policy options available depend on the type of agency. Cities exercise substantial control over local land use issues and have primary responsibility for enforcing state building codes. Policy options include general plan language, ordinances (either with or without mandatory provisions), conditions of approval and development agreements (typically with a mandatory component), and resolutions (typically voluntary recommendations). Counties exercise the same type of land use control in unincorporated areas and have comparable policy tools at their disposal. In addition, counties often play a coordinating function around specific issues and thus have an opportunity to advocate policies to cities within their geographic boundaries. JPAs lack local land use authority so their policy options are limited to model policies their member agencies can voluntarily adopt.

Twenty agencies have adopted one or more green building-related policies (not counting construction and demolition ordinances). Three agencies are counted under multiple policy type categories.

Table 4. Types of Residential Policies Adopted

Policy Type	Cities	Counties	JPAs	Utility	Total Agencies
Model Policy	-	1	1	-	2
General Plan Element	3	1	-	-	4
Ordinance	7	1	-	1	9
Condition of Approval	5 ¹	1	-	-	6
Resolution	5	1	-	-	6

Model Policies

One county (San Mateo) and one JPA (Green Building in Alameda County, a program of Stopwaste.org) have developed model green building guidelines. In addition, Green Building in Alameda County has developed a model resolution for cities wishing to adopt the Alameda County Residential Green Building Guidelines (for New Construction, Home Remodeling and Multifamily) as a City reference document.

The League of California Cities adopted a Resolution relating to voluntary statewide residential green building guidelines at its 2005 Annual Conference in October. The Resolution establishes League policy to

- Support the voluntary inclusion of green building design and strategies in public and private development projects;

¹ Includes one agency that establishes energy efficiency requirements through development agreements

- Encourage leadership from the appropriate state agencies in developing voluntary, model statewide residential green building guidelines, and to provide information to local jurisdictions on how to evaluate and use different green building strategies; and
- Encourage cities to adopt voluntary residential green building guidelines as a reference guide, to evaluate available green building programs and adopt those best suited for their communities, and to explore incentives to encourage green building by private developers of residential construction projects.

General Plan Elements

While most General Plans include address energy, water, and resource use in some fashion, at least three cities (Antioch, Berkeley, and San Jose) and one county (San Mateo) have incorporated more explicit green building language into their General Plan. City Of Berkeley's General Plan Environmental Management Element stipulates that the City promote and encourage compliance with green building standards and that all private buildings be green certified. San Mateo County's Housing Element calls for the county to promote energy conservation, promote sustainable building practices and improve energy efficiency of new homes. Similarly, Green Building in Alameda County's model General Plan language recommends establishing policies to promote creation of uniform green building standards and to encourage private development to use green building methods and practices.

Ordinances

One county, one utility, and seven cities have adopted residential green building-related ordinances. All but one incorporate mandatory features.

- **City of Antioch:** Residential Development Allocation Ordinance requires new developments to fill out a point checklist, and accrue 250 points out of 500. The checklist includes a number of features that are desirable from a community perspective, including green building features. Green building is thus one way to earn points and meet the point threshold requirements.
- **City of Berkeley:** Mandatory Residential Energy Conservation ordinance requires that every single and multifamily residence sold and every remodel project over 50,000 dollars must comply with energy requirements. Zoning and Energy Department staff enforce compliance by placing deed restrictions or denying resale or use permits to noncompliant projects.
- **City of Cotati:** Mandatory Sustainable Building Program requires all new residential construction, and encourages all remodels, to obtain 60 points on the Green Points Checklist, obtained from the County of Sonoma. Applicant must hire a certified green building professional to rate the project, provide documentation for Green materials and practices, and certify the building as green at completion. Agency staff and third party inspectors verify compliance: The applicant's green consultant provides documentation, the Planning staff verifies green consultant's analysis throughout the planning process and plan check, and

the Building and Engineering department verifies at plan check. If a minimum of 60 points are not achieved, a certificate of occupancy will not be issued.

- **City of Livermore:** Housing Implementation Program implements the city's growth control policy. Residential developers must compete for a limited number of housing allocations annually. One of the evaluation criteria in selection process is green building features of the project. City plans to incorporate a mandatory requirement to complete a green building checklist.
- **City of Palo Alto Utility:** All multifamily projects over three units and commercial projects must go through the Architectural Review Board (ARB). Applications to the ARB must include sustainable design elements. Through this application, the applicant must think through sustainable design prior to going to the ARB, and is then committing to these elements on paper. The ARB derives its authority from the Zoning Ordinance, Palo Alto Municipal Code (PAMC) Chapter 18.76.020(d). Currently, the Planning Department is updating the Zoning Chapter of the PAMC and intends to modify the text to make sustainability and green building language more explicit.
- **City of Novato:** Mandatory policy requires new residential construction to meet a minimum of 50 Green Points with a minimum of 10 points in each category. Major renovations must earn a minimum of 30 Green Points with a minimum of 5 points in each category. Ordinance requirements do not apply to multifamily, assisted living facilities, senior housing or commercial facilities where rooms are rented for transient occupancy. Major Renovations are defined as changes to existing residential buildings that (a) increase the square footage by 50 percent or greater or; (b) remove over 50 percent of the existing interior wall and/or ceiling coverings to relocate or modify the existing floor plan. Applicants must submit paperwork before permit approval. Building/Planning Department staff verify compliance. Enforcement is through denial of final certificate of occupancy.
- **City of Sebastopol:** Ordinance sets mandatory sustainable building criteria based on the County of Sonoma Waste Management Agency Green Building Guidelines. The program is for new residential, commercial and commercial remodels 1800 square feet and larger. Projects must earn a minimum of 60 points total, with 15 points minimum in Indoor Air Quality, Energy Efficiency, and Resource Efficiency categories, in order to receive a certificate of occupancy.²
- **City of Sunnyvale:** Policy encourages public and private facilities to include green building design features into new construction, remodeling, and maintenance.
- **County of Marin:** The Single Family Dwelling Energy Efficiency Ordinance requires that new single family homes as well as additions and remodels resulting in a home larger than 3,500 square feet meet the Title 24 energy budget

² See <http://www.ci.sebastopol.ca.us/greenbuildingprogram.shtml>

requirements of a 3,500 square foot home. A building permit will not be issued until the applicant provides a Title 24 energy budget analysis and a supplemental worksheet demonstrating the project complies with the requirements of the ordinance. Building inspectors verify energy measures are properly installed as part of standard building inspections.

Conditions of Approval

Five cities and one county have established green building criteria as a standard condition of approval. In some cases, the directive to establish green building criteria may have come via a Council or Board ordinance or resolution.

- **City of Berkeley:** Berkeley's Planning Department requires all projects applying for a zoning permit to have a green building consultation to identify green opportunities and goals for the project. Major projects are required to complete the appropriate green building checklist and get a free energy analysis from Savings By Design as a condition of approval.
- **City of Brentwood:** Regional Growth Management Plan requires New Home construction to go through a check list and qualify for a certain number of points to gain building approval. The Alameda County Guidelines are included as part of the checklist. Therefore, the Green Points are not mandatory but assist in gaining mandatory overall points for approval. Agency staff, from the Committee of City department directors, and applicant verify compliance. If the RGMP checklist is not filled out, planning approval is denied.
- **City of Emeryville:** Multifamily projects will be required to get scored under the Alameda County multifamily guidelines.
- **City of Pleasanton:** Requires new residential projects in PUD zoning districts to include a minimum of 50 points per the Green Points rating system. Custom homes on lots of records in areas without the PUD requirement are asked to voluntarily submit a checklist with 50 points. Agency staff from the Planning and Building Departments verify compliance. The penalty provision is no planning approval.
- **County of Marin:** Green building is a condition of approval for all projects subject to discretionary review. Construction on projects with a total conditioned floor area up to 3,500 square feet must meet 50 points, between 3,501 and 6,500 square feet must meet 76 points, between 6,501 and 9,500 square feet must meet 101 points, and greater than 9,501 square feet must meet 126 points on the County of Marin green building rating system adapted from the Green Points system.
- **City of Winters:** Through separate development agreements residential projects are required to install solar photovoltaic systems on a portion of the units, pre-wire the remainder of the units for solar photovoltaic, and meet the ENERGY STAR energy efficiency standard in all residential projects. Agency staff from Community Development department verifies compliance.

Resolutions³

- **City of Berkeley:** The City Council adopted the Green Building Initiative in December 2002 to remove barriers to green construction and to promote green building for all construction projects in Berkeley.
- **City of Dublin:** Resolution adopts Alameda County Guidelines as reference for private development.
- **City of Hayward:** Resolution requires submission of Alameda County Multifamily Green Points checklist for multifamily projects of 20 units or more.
- **City of Rohnert Park:** Resolution adopts Alameda County Guidelines as a “referenced standard” for all residential construction, July, 2005. The City of Rohnert Park is working to create a green building ordinance under a more general Sustainability Ordinance. The planned ordinance will be a hybrid form, combining voluntary and mandatory dependent on varying zoning areas. The standards would be based on the Sonoma Green Building guidelines, originated from Alameda County Guidelines. An incentive plan would include allocation of building permits.
- **City of San Leandro:** Resolution adopts Alameda County Guidelines as a reference for private development.
- **City of Santa Rosa:** City Council adopted resolution 25891 in February, 2004, adopting a green building program implementation plan. The implementation plan addresses residential, civic, and commercial construction. The City is currently redrafting the implementation plan to reduce greenhouse gas emissions by 50 percent, and eventually 100 percent.⁴ The Utilities department promotes the use of environmentally friendly materials in the construction and remodeling of buildings. Resolution 26046, adopted August 2004, approved an interim third-party green certification process and adopted Green Points as the rating tool. Staff is working with the Planning Commission to fast track permitting process to mirror affordable housing permitting.⁵
- **County of Contra Costa:** Resolution encourages voluntary use of the Alameda County guidelines and Green Points.
- **Town of Portola Valley:** In September, 2003, the Town Council adopted the use of the San Mateo Green Building guidelines and all architectural review projects are required to submit the San Mateo Green Building checklist.

³ This section includes information about resolutions adopted by the cities of Hayward and San Leandro. This information is not reflected in Table 3, which is limited to responses from agencies that completed the survey.

⁴ See <http://ci.santa-rosa.ca.us/default.aspx?PageId=257&NewsId=25891>

⁵ See <http://ci.santa-rosa.ca.us/default.aspx?PageId=257&NewsId=26046>

Planned Residential Policies

Ten agencies have residential policies in the planning pipeline.

- **City of Brisbane:** Policy advisory committee plans to recommend a mandate using the Green Points checklist. The committee has worked with a consultant to offer assistance in green building policy development and implementation.
- **City of Oakland:** Working on developing a policy that would mandate the Alameda County multifamily guidelines checklist to be submitted as a condition of approval for all new multifamily developments. Adoption is expected in early 2006.
- **City of Pacifica:** Plans to pass a green building ordinance similar to San Mateo County. Currently, distributes the San Mateo County checklist with each building permit application, and requests that the list be completed and returned prior to permit issuance. However, returning the checklist is completely voluntary, and is not part of any formal policy initiative. Staff encourages builders to incorporate Green concepts into development plans.
- **City of Sacramento:** Implementing energy efficiency projects, water efficiency projects, improving air and water quality, purchasing resource efficient materials, promoting recycling efforts and has acted on other issues identified under the “sustainability” umbrella.
- **City of San Leandro:** Working on adopting a voluntary residential checklist
- **City of San Mateo:** Planning to develop a Green Building policy with incentives
- **City of Union City:** Developing a resolution to adopt Alameda County guidelines as a reference for private development
- **County/City of San Francisco:** Plans to adopt, by resolution, a voluntary green building program using Alameda guidelines and incentives (possibly including priority permitting or tax incentives)
- **Truckee-Donner PUD:** Town of Truckee plans to incorporate Green Building language in their General Plan

Policy Outcomes

For the most part, respondents felt that policies put in place to-date are generally working but quantitative results are virtually nonexistent. In some cases, this is because the policy has not been in force long enough for projects affected by the policy to be completed. In other cases, information on outcomes is not being systematically collected. It can be time-consuming and expensive to collect this data, and it requires coordination among various city departments. As green building initiatives gain maturity, the need to track results will become more critical.

Residential-Sector Incentives

Eight agencies offer some kind of incentive for green building-related construction practices, including two utilities, a county, a JPA, and four cities. The two utilities offer financial incentives for energy efficiency measures, as required by law. Truckee Donner PUD also offers technical assistance. County of Marin and City of Sebastopol offer incentives that focus on energy efficiency and/or renewable energy.

Green Building in Alameda County, City of Berkeley, and City of Pleasanton all offer a technical assistance linked to project performance, as rated on the Green Points scoring system. Green Building in Alameda County offers grants and technical assistance to non-profit multifamily developers and incentives to market-rate multifamily developments. Green Building in Alameda County also offers rebates to contractors that recycle construction and demolition debris in certain cities.

City of Berkeley and County of Marin offer permit assistance. Both agencies rely on in-house staff to meet higher expectations for permit processing times for green projects.

One other agency, City of San Mateo, described plans to offer incentives such as density bonuses, technical assistance, relaxed design restrictions, fee waivers, and reduced parking requirements. As with green building policies, agencies were unable to offer specific information on outcomes achieved through the incentive mechanisms.

Table 5. Residential Incentive Strategies

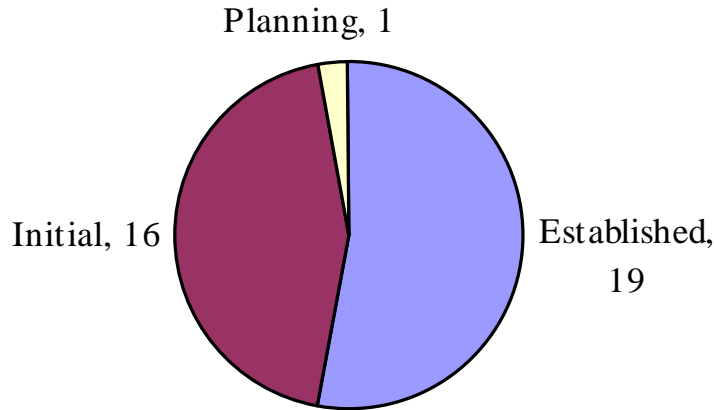
Agency	Expedited Permits	Fee Discount / Waiver	Grants / Loans	Financial Incentives	Technical Assistance
City of Berkeley	✓				✓
City of Palo Alto Utilities				✓	✓
City of Pleasanton					✓
City of Sebastopol		✓			
County of Marin	✓	✓		✓	✓
Green Building in Alameda County			✓	✓	✓
Town of Portola Valley		✓			
Truckee Donner PUD				✓	✓

Residential-Sector Educational Programs

Of the 37 agencies that address residential green building, all but two indicated that their efforts include some form of outreach and education. More than half described their education initiatives as “established.” One additional agency with no current residential-sector initiative has plans to initiate education activities in this sector. One can infer that

education is widely viewed as valuable in its own right, as well as an important precursor and adjunct to policies and incentives.

Figure 4. Residential Education Development Stage



Respondents were asked to characterize the types of educational strategies they used and whether they relied on Build It Green for either content or delivery, as shown in Table 6.

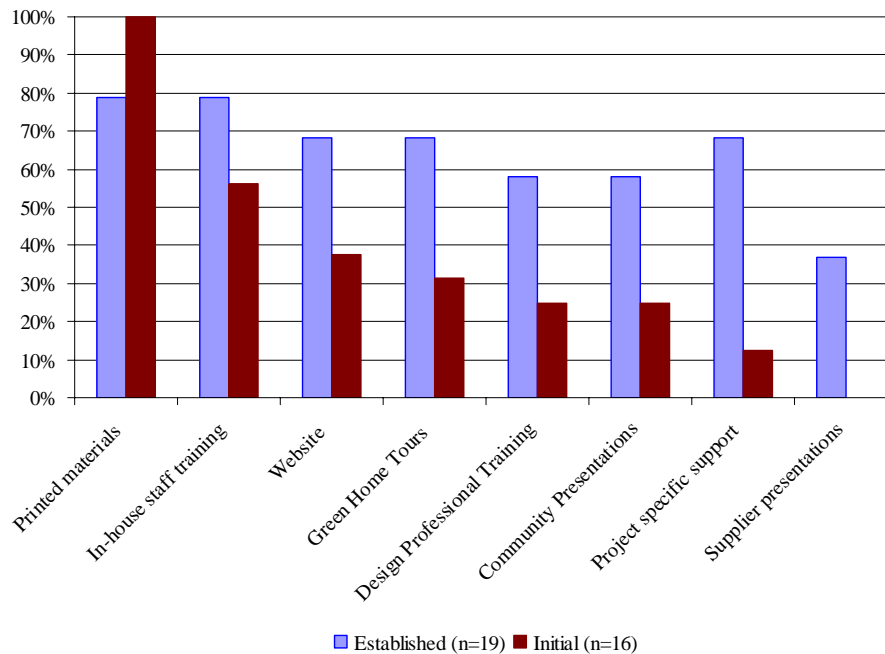
Table 6. Residential Education Strategies

Educational Activity	In-House	Build It Green	Combination	Other	Total
Printed Materials	6	2	12	11	31
In-House Staff Training	7	4	8	5	24
Website	14	1	3	2	20
Green Home Tours	5	13	1	-	19
Building/Design Professional Training	4	9	-	2	15
Community Presentations	7	4	2	2	15
Project-specific Technical Support	7	6	1	1	15
Supplier Presentations	2	1	2	2	7

A comparison of strategies adopted by programs in initial versus established development stages sheds some light on the typical sequence of strategy adoption. Figure 5 shows the relative frequencies of adoption for each strategy, sorted in descending order of adoption. Virtually every program, either emerging or established, makes use of printed materials, presumably because their distribution imposes minimal incremental demands on staff and contributes to building support for additional activities. In-house training is a high priority for emerging programs because well-educated staff is required for more involved forms of community education. Websites are an important communication tool for

programs with significant local offerings but emerging programs can link to substantial volumes of green building content via a simple page with some key links. Home tour involvement is greatly facilitated by opportunities for agencies to partner with Build It Green and other like-minded organizations. The remaining education strategies require more coordination, planning, and technical skills so they are primarily the purview of more established programs.

Figure 5. Education Strategies by Program Development Stage



Residential Education Activities

- Printed Materials:** Among cities and counties, the most common form of print material distribution is offering program brochures, green building guidelines, and fact sheets at agency permit counters. A number of agencies include green building information in newsletters or direct mailings. City of Palo Alto leverages its municipal utility status to distribute information via bill inserts. Pleasant Hill mentioned distributing flyers and brochures at community events and it is likely that other agencies pursue this approach as well. Other print collateral mentioned include a calendar of events, a maintained list of green buildings in the community, and local materials resource guides.

A common theme was the ability of local governments to leverage existing content for local distribution. Green Building in Alameda County and San Mateo County have both developed and produced guidelines for cities in their respective counties to distribute and several other cities and counties have reprinted the Alameda County guidelines under their own cover. Build It Green has distributed 11"x17" signs and program brochures to more than 50 agencies. In the North Bay, several cities leverage information resources from the Environmental Technology

Center at Sonoma State University. Marin County has written its own series of fact sheets.

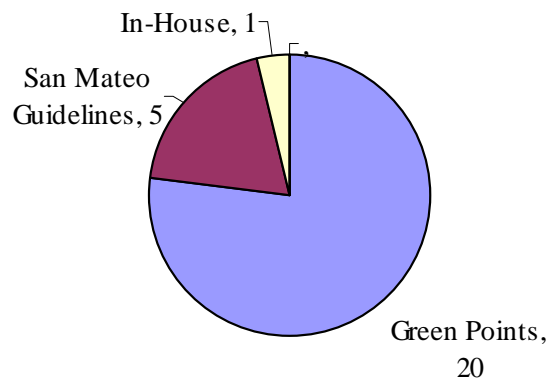
- **In-house staff training:** Many agencies have provided their staff opportunities to acquire additional green building education. Marin County brought in a Build It Green contractor to train its Planning and Building Department staff. Contra Costa County and the Cities of Dublin and Pleasanton did the same for their building inspectors. Other agencies have brought in third-party trainers or have provided financial support for staff to obtain LEED certification, attend Build It Green Certified Green Building Professional trainings, or attend USGBC's annual Greenbuild conference. A couple of agencies maintain subscriptions to green building-oriented newsletters such as the Environmental Building News or Building Official Magazine. Other agencies are members of organizations such as the USGBC or the Build It Green Public Agency Council. One agency has monthly staff meetings to discuss new topics or programs.
- **Website:** At least nineteen agencies provide green building information on their agency website. A handful have developed a green building page using a template provided by Build It Green and several more agencies provide links to the Build It Green website.
- **Green Home Tours:** Eighteen agencies have spearheaded or participated in home tours, including 13 agencies that reported involvement in Build It Green tours in the East and North Bay. Elsewhere, agencies are organizing green home tours or participating in solar home tours. The County of San Mateo offers Green Open Homes throughout the year, as an alternative to a more work intensive tour.
- **Building/Design Professional Training:** Nine agencies in the East and North Bay and in Santa Cruz County have collaborated with Build it Green to provide building professional training, either in conjunction with a home tour or as part of the Certified Green Building Professional training program. Six more agencies have provided building and design professional training in-house or in collaboration with Green Building in Alameda County, the PG&E Pacific Energy Center, or SSU Environmental Technology Center. Truckee Donner PUD offers a green building seminar at an annual Home & Building show.
- **Community Presentations:** At least 15 agencies host community presentations on green building-related topics, drawing on in-house resources and resources from Build It Green and other partners.
- **Project-specific Technical Support:** A number of agencies stock Build It Green "Ask an Expert" cards at their permit counters and refer applicants to this hotline. City of Berkeley contracts with Build It Green to provide project consultations for all projects going through zoning with a green benefits analysis and other technical assistance for "Green Track" projects that commit to green certification. Green Building in Alameda County offers technical support to member agencies in conjunction with its grant program. City of Pleasanton provides friendly audits and offers recommendations for making projects even greener.

- **Supplier presentations:** Seven agencies pursue some form of education and outreach to building product retailers and distributors.
- **Other Activities:** One of the most unique education initiatives was San Mateo County RecycleWorks' leadership in organizing a green dollhouse competition. RecycleWorks also cosponsors an annual Green Building Award to support sustainable design and to recognize the designers, builders, and owners of green buildings in San Mateo County. Central Contra Costa Solid Waste Authority sponsored billboard advertisements in selected area BART stations. A few agencies, including the Cities of Berkeley and Oakland and the Counties of Contra Costa and Marin, maintain an information kiosk to display product samples and various information resources.

Guidelines as Educational Tools

Survey responses indicate that guidelines are a valuable component of an education initiative, though not necessarily a prerequisite. Almost 83 percent of surveyed agencies reference green building guidelines as part of their education efforts. Figure 6 shows the breakout for single-family remodeling guidelines. Results are comparable for new construction and multifamily. Guidelines developed by County of San Mateo and Green Building in Alameda County (shown in Figure 6 as Green Points) have both been well received in public agency circles.

Figure 6. Residential Guidelines Referenced by Education Initiatives



Residential Education Outcomes

Reported outcomes are both qualitative and quantitative. Many respondents reported a general increase in green building awareness. Education efforts have made green building policies possible by cultivating support from staff, building professionals, and the community. A few agencies are tracking quantitative performance metrics such as

number of event participants, number of Ask An Expert calls for their area, and quantities of guidelines, brochures, and Ask An Expert cards distributed.

III. Civic Sector Results

Eighteen agencies have civic green building initiatives, which include education and outreach efforts as well as policy initiatives, and fifteen agencies have formally adopted civic green building policies. JPAs do not generally make significant investments in capital infrastructure so it is not reasonable to expect them to adopt green building policies to address capital projects. Though not reflected in Table 7, it is worth noting that Green Building in Alameda County, a JPA, has developed a model civic green building ordinance and general plan language suitable for cities to adopt. In response, eight member agencies have adopted an ordinance or policy relating to civic green building.

Table 7. Agencies with Civic Initiatives

Agency Type	Agencies with Civic Initiatives	Agencies with Civic Policies	Total Agencies Surveyed ⁶
City	13	11	35
County	3	3	6
Utility	2	1	2
Total	18	15	43

Civic Sector Policies⁷

The 15 agencies with existing policies all characterize those policies as established rather than at an initial stage. In addition, seven agencies are in the planning stages of developing a civic policy, but have not yet officially adopted it. Three more agencies are incorporating green building practices into civic projects without adopting a formal policy that mandates such action.

⁶ Total does not include JPAs

⁷ This section includes information about policies adopted by the City of Hayward and County of Alameda. This information is not reflected in Tables 6 and 7, which is limited to responses from agencies that completed the survey.

Table 8. Civic Policy Types

Policy Type	Cities with Policies	Counties with Policies	Utilities with Policies	Total Agencies with Policies
General Plan	1			1
Resolution	6	2	1	9
Ordinance	4	1		5
Total Agencies	11	3	1	15

General Plans

In August of 1994, the San José City Council adopted, as part of its General Plan update, a "Sustainable City Major Strategy", which stated San José's desire to become an environmentally and economically sustainable city. As part of strategy implementation, the City of San José adopted a Green Building Policy on June 19, 2001, which requires all municipal projects over 10,000 gross square feet to meet a "San Jose LEED" rating.⁸

Resolutions and Internal Policies

- **City of Berkeley:** The Berkeley City Council passed Resolution 62,284-NS to require municipal buildings over 5,000 square feet to meet a LEED "Certified" rating level in 2004 and 2005 and a LEED "Silver" rating level in 2006 and beyond. Project registration and certification is encouraged but not required. The resolution exempts historic structures and provides an exemption process for projects for which the prescribed rating level is not economically feasible.⁹
- **City of Cotati:** The City Council adopted resolution 04-84 in November, 2004, establishing the Sustainable Building Program, which requires all civic construction to obtain sixty points on the Green Points Checklist, from the County of Sonoma. Applicant must hire a certified green building professional to rate the project, provide documentation for Green materials/practices, and certify the building as "Green" at completion.
- **City of Hayward:** Adopted a resolution to require a LEED "Silver" standard on civic buildings.
- **City of Palo Alto:** Policy adopted by City Council requires all new construction, renovations, and site improvement projects greater than 10,000 square feet to be LEED certified. In April, 2001, the city adopted a Sustainability Plan, reflecting a commitment to designing energy efficient projects, including green building elements and approaches.

⁸ See <http://www.sanjoseca.gov/esd/natural-energy-resources/gb-policy.htm>

⁹ See <http://www.cityofberkeley.info/sustainable/government/62284.GreenBuilding.pdf>

- **City of Rohnert Park:** Resolution establishes a goal of achieving a 20 percent reduction in greenhouse gases for City operations by the year 2010. The city has purchased a vacant office building and will be doing a major renovation to achieve LEED Gold certification.
- **City of Sacramento:** On September 21, 2004, the Mayor signed Resolution 2004-751 requiring LEED certification of all city projects. For projects over 5,000 square feet, the city has a goal of LEED Silver certification. In addition, the City is currently updating its General Plan and has identified sustainability as an issue to be addressed, including “renewable energy sources, water conservation, waste recycling, green building technology, community design, walkability, and public health.”¹⁰
- **City of Santa Rosa:** City Council adopted resolution 25891 in February, 2004, adopting a green building program implementation plan. The implementation plan addresses residential, civic, and commercial construction. The City is currently redrafting the implementation plan to reduce greenhouse gas emissions by 50 percent, and eventually 100 percent.¹¹
- **City of Sunnyvale:** City policy, established February, 2004, requires the City to consider LEED certification prior to the planning or design of any new City facility over 10,000 square feet.¹²
- **County of Contra Costa:** Policy references the California High Performance Schools (CHPS) guidelines as an alternative to LEED. A study conducted by the County office concluded that the CHPS guidelines functions better for County owned and operated buildings because these buildings need to last just as long as schools, in addition to improve the work environment just as well for students.
- **County of San Mateo:** Resolution adopted December 11, 2001, establishes Sustainable Building Policy that requires county buildings over 5,000 square feet to attain the highest practicable LEED rating, as developed by USGBC. The County has also adopted a resolution to reduce carbon dioxide emissions by 10 percent by 2010 (from 2005 baseline), which includes goals of 20 percent electricity reduction and no increase in natural gas usage for current facilities and a 5 mpg increase in fleet fuel efficiency. A Public Works Department policy encourages the use of fly ash concrete and mixed aggregates.

Ordinances

- **City of Dublin:** Ordinance No 9-04 approved March, 2004, establishes a mandatory policy of certification by LEED, or alternatively in-house evaluation, for all city projects for which the estimated cost of construction is three million

¹⁰ See http://www.sacgp.org/GP_Documents/Issues-Report/GP_Issues_Report_Accepted_complete_11-22-05.pdf

¹¹ See <http://ci.santa-rosa.ca.us/default.aspx?PageId=257&NewsId=25891>

¹² See <http://sunnyvale.ca.gov/City+Council/Council+Meetings/2004February/Reports/04-064.htm>

dollars or greater. Projects below three million dollars are required to be designed and constructed using as many green practices as appropriate to the project.¹³

- **City of Livermore:** Ordinance 1727, adopted in January, 2004, mandates LEED silver certification or city approved equivalent, for all City Projects, except traditional public works projects.¹⁴ The ordinance adds Chapter 15.74, “Civic Green Buildings”, to the Livermore Municipal Code.
- **City of Oakland:** On April 26, 2005, the City Council unanimously adopted the Green Building Ordinance that requires all City Building projects that equal or exceed \$3 million in construction costs to meet a minimum LEED “Silver” rating, and be so certified by the USGBC. All such projects require a LEED-accredited professional as a principal member of design team from beginning of project.¹⁵
- **City of Pleasanton:** The City Council adopted Ordinance #1873 in December 2002 requiring all civic new construction projects and renovation projects over 20,000 square feet to follow guidelines to meet a LEED “Certified” rating. Building commissioning is not required and formal certification with USGBC is encouraged but not required. Historic structured are exempt.
- **County of Alameda:** Ordinance 2003-63 establishes requirements for county projects to meet a LEED “Silver” rating or county-approved equivalent.
- **County/City of San Francisco:** On May 18, 2004, the Board of Supervisors adopted Ordinance #88-04 (adding a new Chapter 7 to the Environment Code) requiring all municipal new construction, additions and major renovation projects over 5,000 sq ft starting conceptual design on or after September 18 to achieve a LEED Silver certification. The ordinance also requires that a LEED Accredited Professional be a member of each design team and requires achievement of the additional commissioning LEED credit for all projects.¹⁶

Civic Initiative Implementation

A number of agencies are building their first new municipal building certified LEED. The City of El Cerrito is noteworthy in that it plans to incorporate green building into its capital improvement plans without adopting a formal policy mandating the action. The City will be rebuilding two civic buildings in the next ten years: the Recycling Center plans to be LEED certified and the City Hall will use green building construction methods. The City of San Mateo is also leading by example, as the city is building a LEED Silver certified new main library and new police station. The City of San Mateo is planning to incorporate a civic green building policy into a Sustainability Policy that is being drafted.

¹³ See <http://www.stopwaste.org/docs/dublin-gb.pdf>

¹⁴ See <http://www.codepublishing.com/CA/Livermore/municipal/Lvmore15/Lvmore1574.html>

¹⁵ See <http://www.oaklandpw.com/Page90.aspx>

¹⁶ See <http://www.sfgov.org/site/uploadedfiles/bdsupvrs/ordinances04/o0088-04.pdf>

The Cities of Berkeley and San Jose are beginning to track the number of buildings with energy reductions or that have met the LEED certified level. San Jose is examining the potential to implement an incentive mechanism for in-house design staff, such as receiving benefits from planning a building that qualifies for PG&E's Savings by Design energy efficiency program.

The City/County of San Francisco's 1999 Resource Efficient Building Ordinance directed the Environment Department to develop and manage a portfolio of nine pilot projects, the intent being that after a three year period, enough data would be collected to mandate green building codes and guidelines.¹⁷

The City of Fresno's experience is instructive for the lack of implementation results. The City Council directed the Department of Public Works to bid out projects over 10,000 square feet as green but "green" was never defined. As a consequence, there has been no tangible implementation.

¹⁷ <http://www.sfenvironment.com/aboutus/innovative/greenbldg/projects.htm>

IV. Commercial and Industrial Sector Results

Paralleling results from the residential sector, educational programs are the most common public agency approach to C&I sector green building. As previously noted, the relative frequency of education versus policies versus incentives mirrors an appropriate chronology of program development.

Table 9. C&I Initiatives by Agency and Initiative Type

Agency Type	Agencies with C&I Policies	Agencies with C&I Incentives	Agencies with C&I Education Programs	Total Agencies with C&I Initiatives	Total Agencies Surveyed
City	10	4	10	14	35
County	-	1	4	4	7
JPA	1	1	1	1	2
Utility	1	2	1	2	2
Total	12	8	16	21	46

Since C&I education is a central focus of USGBC and PG&E's Savings by Design program, this research effort focused instead on the policies and incentives public agencies have put in place to influence this sector.

Commercial and Industrial Sector Policies

Nine of ten agencies with existing policies characterize those policies as established. Nine more agencies are planning to develop a green building policy for the C&I sector.

Table 10. C&I Policy Development Stage

Agency	Established	Initial	Planning
City of Berkeley	✓		
City of Brisbane			✓
City of Cotati	✓		
City of Dublin			✓
City of Emeryville			✓
City of Livermore			✓
City of Oakland	✓		
City of Pacifica			✓
City of Palo Alto		✓	
City of Pleasanton	✓		
City of Rohnert Park			✓
City of Sacramento			✓
City of San Jose	✓		
City of San Leandro		✓	
City of San Mateo			✓
City of Santa Rosa	✓		
City of Sebastopol	✓		
City of Sunnyvale	✓		
County/City of San Francisco			✓
Green Building in Alameda County	✓		
Town of Portola Valley		✓	
Total	9	3	9

General Plans

In August of 1994, the San José City Council adopted, as part of its General Plan update, a "Sustainable City Major Strategy", which stated San José's desire to become an environmentally and economically sustainable city. As part of strategy implementation, the City of San José adopted a Green Building Policy on June 19, 2001, which specifies that the City shall provide leadership and guidance to encourage the application of green building practices in private sector planning, design, construction, management, renovation, operations, and demolition of buildings by promoting the voluntary application of the San José Green Building Policy goals and the "San José LEED" Green Building Rating System.¹⁸

Green Building in Alameda County has developed a model resolution and general plan language suitable for cities to adopt.

City of Berkeley General Plan states that the City will develop programs to encourage green building certification and minimize green house gases produced by new buildings.

¹⁸ See <http://www.sanjoseca.gov/esd/natural-energy-resources/gb-policy.htm>

Resolutions

- **City of Santa Rosa:** City Council adopted resolution 25891 in February, 2004, adopting a green building program implementation plan. The implementation plan addresses residential, civic, and commercial construction. The City is currently redrafting the implementation plan to reduce emissions by 50 percent, and eventually 100 percent.¹⁹
- **City of San Leandro:** Resolution adopting LEED rating system as a reference for commercial buildings.
- **Town of Portola Valley:** Per resolution, adopted September, 2003, all architectural review projects are required to submit the San Mateo Green Building checklist.

Ordinances

- **City of Berkeley:** Commercial Energy Conservation Ordinance (Ordinance 6176-N.S.) requires all covered projects over 5,000 square feet or \$200,000 to comply with all the measures identified, up to the expenditure limit for the building. Agency staff from Zoning and Energy department verify compliance. The penalty provision includes deed restrictions, no resale, or no use permit.²⁰
- **City of Cotati:** The City Council adopted resolution 04-84 in November, 2004, establishing the Sustainable Building Program, which requires all new commercial construction, and all remodels of 2,500 square feet or more, to obtain sixty points on the Green Points Checklist, obtained from the County of Sonoma. Applicant must hire a certified green building professional to rate the project, provide documentation for Green materials/practices, and certify the building as “Green” at completion. Agency staff and third party verify compliance. The applicant’s Green consultant provides documentation, the Planning staff verifies Green consultant’s analysis throughout planning process and plan check, and the Building and Engineering department verify at plan check. If a minimum of 60 points are not achieved, a Certificate of Occupancy will not be issued.
- **City of Oakland:** The City’s Green Building Ordinance, adopted April 26, 2005, establishes a City policy to encourage green building in the private sector and authorizes staff to develop voluntary education and incentive mechanisms. The ordinance references LEED in defining green building practices.²¹
- **City of Palo Alto Utility:** All multifamily projects over 3 units and commercial projects must go through the Architectural Review Board (ARB). Applications to

¹⁹ See <http://ci.santa-rosa.ca.us/default.aspx?PageId=257&NewsId=25891>

²⁰ See <http://www.ci.berkeley.ca.us/sustainable/buildings/ceco.html>

²¹ See <http://www.oaklandpw.com/Page90.aspx>

the ARB must include sustainable design elements. The ARB is using the Zoning Ordinance, Palo Alto Municipal Code (PAMC) Chapter 18.76.020(d). Currently, the Planning Department is updating the Zoning Chapter of the PAMC and intends to modify the text to incorporate sustainability and green building.

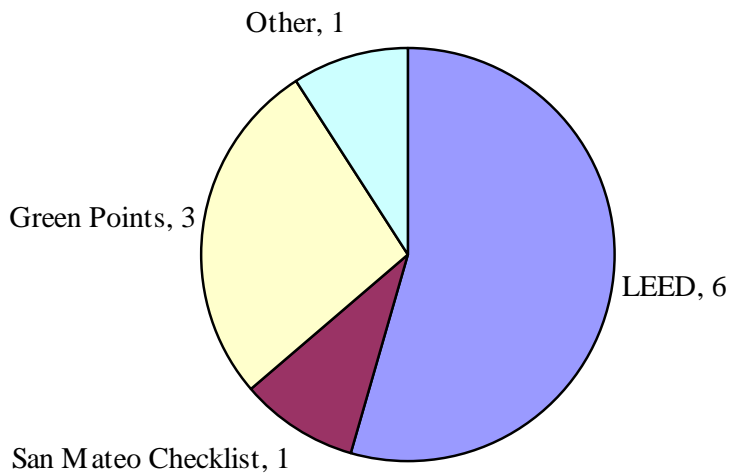
- **City of Pleasanton:** The City Council adopted Ordinance #1873 in December 2002 requiring all C&I projects over 20,000 sq. ft. to follow guidelines to meet a LEED “Certified” rating. Building commissioning is not required and formal certification with USGBC is encouraged but not required. The Planning and Building department is responsible for verifying conformance. Nonconformance can result in a stop-work order or denial of the final occupancy certificate.
- **City of Sebastopol:** Mandatory sustainable building criteria for new commercial projects and commercial remodels 1,800 square feet and larger. Single-use commercial buildings are evaluated using LEED while mixed-use projects are evaluated using the County of Sonoma Waste Management Agency Green Building Guidelines (i.e., Green Points). Projects evaluated using Green Points must attain a minimum 60 overall points, with 15 points minimum in Indoor Air Quality, Energy Efficiency and Resource Efficiency categories. A third party, a Qualified Green Points Inspector/Rater/Consultant, verifies compliance. Nonconformance can result in denial of the final occupancy certificate.²²
- **City of Sunnyvale:** The City-adopted ordinance establishes a voluntary policy to encourage public and private facilities to include green building design features into new construction, remodeling, and maintenance. As incentive, the policy allows an additional five percent Floor Area Ratio (FAR) for any building located in an industrial zoning district (excluding Moffett Park) when the building is designed and intended for LEED Certification. The Moffett Park Specific Plan includes separate green building standards.²³

C&I Definitions of “Green”

As previously noted, essential element of a sound policy is a clear definition of “green.” As with residential policies, all but one agency with a policy addressing the C&I sector links policy prescriptions to a relatively detailed set of guidelines, as shown in Figure 7. The most remarkable finding from Figure 7 is the number of agencies that reference Green Points, even though Green Points was explicitly developed for the residential sector. This outcome reflects the perception (and perhaps reality) that LEED, though targeted to C&I, is too onerous to apply to small commercial projects, due to its performance approach. Green Points, because it takes a more prescriptive approach, is judged to be more suitable for small commercial projects. This outcome suggests that small commercial projects are not adequately served, either by LEED or by Green Points.

²² See <http://www.ci.sebastopol.ca.us/greenbuildingprogram.shtml>

²³ See <http://sunnyvale.ca.gov/Departments/Community+Development/Planning+Division/Planning-Green+Buildings.htm>

Figure 7. Guidelines Referenced by Agency C&I Policies***Policy Outcomes***

There were limited responses to questions about policy outcomes. The City of Pleasanton has gone through all commercial projects with an outside agent, KEMA, for an "as-built" audit. A few other agencies are beginning to track the percentage square foot that has been built to green building guidelines.

Commercial-Sector Incentives

Respondents were queried about the types of incentives they might offer to encourage green building in the C&I sector, with particular attention to ten incentive mechanisms:

- Business tax credits
- Density bonus
- Development entitlements
- Expedited permits
- Fee discounts and waivers
- Grants/Loans
- Land donation
- Financial Incentives
- Reduced parking requirements

- Technical assistance

Most of these mechanisms are tied to local land use authority and business regulation that cities and counties exercise. JPAs can offer technical assistances, grants and loans, and rebates, but the remaining mechanisms are generally outside of a JPA's purview. Utilities have the easiest time offering rebates because they can link the rebates to resource conservation benefits and fund them through ratepayer revenues such as the Public Goods Charge for energy efficiency.

Table 11. Incentive Types

Agency	Density bonus	Expedited permits	Fee waivers	Financial Incentives	Technical assistance
City of Berkeley		✓			✓
City of Oakland		✓		✓	✓
City of Palo Alto Utilities				✓	✓
City of Sunnyvale	✓				
County of Marin		✓			
Green Building in Alameda County				✓	✓
Town of Portola Valley			✓		
Truckee Donner PUD				✓	✓

Again there were very limited responses to questions regarding incentive mechanism outcomes. The lack of response may demonstrate a need for greater program monitoring and analysis.

V. Program Resources and Implementation

An agency's ability to design and implement green building initiatives is largely a function of available resources. Key ingredients include staff time, expertise, financial resources, volunteer or intern support, and relationships with strategic partners.

Figure 8 summarizes typical staffing levels by agency type. Small cities in particular experience significant challenges in designating staff time specifically to focus on green building issues. These agencies are able to move forward on green building issues when motivated staff are willing to take on green building in concert with their other responsibilities.

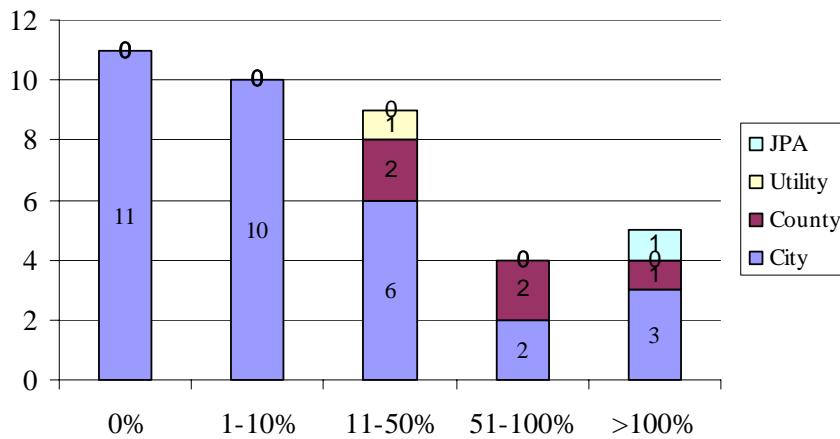
Figure 8. Allocated Staff Time (%FTE)

Table 12 reinforces the findings from Figure 8. Despite the fact that cities comprise 35 of 46 agencies surveyed, they represent only half the agencies that designate a specific staff person as responsible for green building programs.

Table 12. Designated Program Coordinator

Agency Type	Agencies with Designated Program Coordinator
City	6
County	3
JPA	2
Utility	1
Total	12

As shown in Table 13, only eight agencies make active use of volunteers to extend their in-house staffing capacity. However, the ability to involve volunteers requires staff time to develop tasks and manage volunteer activities. As a consequence, virtually all agencies that report using volunteers also designate at least 10 percent FTE staff time for green building.

Table 13. Volunteer Support

Volunteer Hours per Month	Agencies that Engage Volunteers
1-10 hours	2
11-20 hours	4
>20 hours	2
Total	8

Survey respondents were asked to report approximate annual green building budget figures, when applicable. However, lacking detailed information regarding the cost categories that make up the reported figures, an apples-to-apples comparison of results is problematic, at best. In general, the agencies capable of providing specific budget figures were the same ones with designated staffing levels. Most agencies simply address green building as staff time is available and there is no earmarked funding.

Four sources were identified as the primary funding sources for green building initiatives, as shown in Table 14. Other sources mentioned included Enterprise funds, utility fees, franchise fees, and electric/water revenues.

Table 14. Funding Sources

Funding Source	Agencies receiving funding type
General funds	7
Solid waste tipping fees	4
External grants	4
Applicant fees	5
Total	20

Agencies noted a variety of strategic partners, as shown in Table 15. Other agency departments generated the most mentions, highlighting the importance of program support throughout the agency for a multi-disciplinary approach to green building. Agency staff next turn to their peers in other agencies (neighboring cities, county staff, waste management agency staff, etc.) and in green building nonprofits such as Build It Green and USGBC. Further down the list, agency staff work with a variety of partners that offer specialized technical expertise or provide connections to building professionals and the community.

Table 15. Strategic Partners

Strategic Partner	Number of Mentions
Other Departments	16
Build It Green	15
Waste Management Authority	13
Neighboring cities	10
County	10
USGBC	8
University	7
Community green building working groups	7
Professional / trade associations	6
PG&E	3
Nonprofit	3
Other	3

VI. Conclusion

As this report demonstrates, green building enjoys support from a broad and diverse array of public agencies in the Bay Area and in Northern California. These agencies have made great strides in crafting suitable policies, developing incentive mechanisms, and honing education strategies and messages. They have done so with often limited resources.

This report also provides evidence to support four general recommendations for going forward:

- Green building advocates in the public sector should continue their efforts to consolidate support for green building within their respective agencies to better integrate green building considerations into the agency's routine functions.
- Agencies should continue to broaden and deepen their peer networks to improve information flows and support emerging programs with the knowledge and experience gained from more mature programs.
- Agencies should redouble their efforts to "regionalize" green building by harmonizing key aspects of their program designs for greater consistency across agency boundaries and by pooling resources to achieve efficiencies of scale in program delivery.
- Agencies should begin to focus on program tracking, monitoring, and evaluation to assemble the tangible results that will be required to establish the public policy case for green building to skeptical policy makers and the public.

Appendix A: Respondent List

Agency	County	Contact Person	Job Title
Central Contra Costa Solid Waste Authority	Contra Costa	Jenny Orbeck	Waste Prevention and Recycling Specialist
City and County of San Francisco	San Francisco	Laura Ingall	Residential and Commercial Green Building Coordinator
City of Antioch	Contra Costa	Julie Haas-Wajdowicz	Environmental Resource Coordinator
City of Berkeley	Alameda	Billi Romain	Green Building Coordinator
City of Brentwood	Contra Costa	Erik Nolthenius	Senior Planner
City of Brisbane	San Mateo	Lisa Pontecorva	Open Space and Ecology Analyst
City of Clayton	Contra Costa	Laura Hoffmeister	Assistant to the City Manager
City of Concord	Contra Costa	Jeff Roubal	Clean Water Program Manager
City of Cotati	Contra Costa	Misti Harris, Marsha Sue Lustig	Planning Technician
City of Dublin	Alameda	Joni Pattillo	Assistant City Manager
City of El Cerrito	Contra Costa	Alexis Petru	Waste Prevention Analyst
City of Emeryville	Alameda	Peter Schultze-Allen	Environmental Analyst
City of Fresno	Fresno	Karana Hattersley-Drayton	Historic Preservation Project Manager
City of Hercules	Contra Costa	Tim Griffith	Chief Building Official
City of Lafayette	Contra Costa	Ann Merideth	Community Development Director
City of Livermore	Alameda	Scott Lee	Associate Planner
City of Novato	Marin	Ron Averiette	Chief Building Official
City of Oakland	Alameda	Carol Misseldine	Senior Staff—Sustainability Program, Mayor's Office
City of Oakley	Contra Costa	Allison Thornberry	
City of Orinda	Contra Costa	Emanuel Ursu	Planning Director
City of Pacifica	San Mateo	Michael Crabtree	Planning Director
City of Palo Alto	Santa Clara	Annette Puskarich	Recycling Coordinator
City of Pittsburg	Contra Costa	Laura Wright	Senior Administrative Analyst
City of Pleasant Hill	Contra Costa	Steve Kersevan	Senior Traffic Engineer
City of Pleasanton	Alameda	Rosalind Rondash	Associate Planner
City of Rohnert Park	Sonoma	Peter Bruck	Deputy Chief Building Official
City of Sacramento	Sacramento	Keith Roberts	City Energy Manager

Agency	County	Contact Person	Job Title
City of San Jose	Santa Clara	Michael Foster	Green Building Coordinator
City of San Leandro	Alameda	Sally Barros	Planner II, Community Development Department
City of San Mateo	San Mateo	Tiffany Whitfill	Recycling Programs Coordinator
City of San Pablo	Contra Costa	Thom Huggett	Building Official
City of Santa Rosa	Sonoma	Dell Tredinnick	Project Development Manager
City of Sebastopol	Sonoma	Craig Williams	Former Planning Commissioner
City of Sunnyvale	Santa Clara	Julie Benabente	Commercial Recycling Specialist
City of Union City	Alameda	Glenn Kirby	Neighborhood Preservation Coordinator
City of Winters	Solano	Dan Sokolow	Community Development Director
County of Contra Costa	Contra Costa	Kae Ono	Planner
County of Marin	Marin	Alec Hoffmann	Green Building Program Coordinator
County of San Mateo	San Mateo	Jill Boone	RecycleWorks Programs Manager
County of Santa Cruz	Santa Cruz	Ana Maria Rebelo	Commercial Waste Reduction Program Coordinator
Green Building in Alameda County	Alameda	Karen Kho	Program Manager
Santa Clara County Integrated Waste Management	Santa Clara	Gretchen Hefner	Associate Management Analyst
Sonoma County Waste Management Agency	Sonoma	Karina Chilcott	Public Education Coordinator
Town of Danville	Contra Costa	Catarina Kidd	Assistant Planner
Town of Portola Valley	San Mateo	Carol Borck	Planning Technician
Truckee Donner Public Utility District	Nevada	Scott Terrell	Planning Director

Appendix B: C&D Ordinances

- As part of this survey, we asked agencies about the status of construction and demolition (C&D) ordinances. Such ordinances contribute toward one of green building's objectives and set a useful benchmark for assessing green building performance in this area. Seventeen agencies have C&D ordinances on the books and four more have an ordinance under development. The typical minimum recycling volume is 50 percent, though a couple agencies specify 60. A couple agencies also set a separate, higher, minimum for inert materials. Project applicability is generally tied to square footage or construction value. Enforcement mechanisms include withholding of certificates of occupancy and forfeiture of performance bonds.
- **Castro Valley Sanitary District:** C&D ordinance requires 50 percent recycled for all projects equal or greater to \$75,000 or district sponsored projects, and 50 percent diversion via waste management or self-hauled for projects less than \$50,000. A fine of 3 percent of the total project cost with a minimum of \$1,000 is the penalty provision.
- **Central Contra Costa Solid Waste Authority:** C&D ordinance requires 50 percent of construction waste to be diverted. A hold on the final inspection, as well as possible fines: \$100 first offense, \$200 2nd offense, and \$500 3rd offense for ordinance violation.
- **City of Alameda:** C&D ordinance requires 50 percent for all projects greater or equal to \$100,000. A Waste Management Plan must be submitted as a condition of approval for permits. A performance security deposit must also be submitted. The Public Works Director or designee verify compliance.
- **City of Antioch:** C&D ordinance requires 50 percent recycled for projects greater or equal to \$75,000, and for all city projects. A Waste Management Plan must be submitted as part of the permit process.
- **City of Atherton:** C&D ordinance requires 50 percent waste recycled. A deposit must be submitted. The Building department verifies compliance. Fines or jail is the penalty provision.
- **City of Brentwood:** C&D ordinance requires 50 percent recycled waste for all covered projects greater or equal to \$75,000. Agency staff, from the Community Development department, and the applicant verify compliance. A denied permit is the penalty provision.
- **City of Brisbane:** C&D ordinance requires 50 percent recycling for all construction and remodeling debris. For demolition work involving an area greater than 200 sq feet or renovations exceeding \$75,000, 100 percent of inerts and 50 percent for demolition excluding inerts must be recycled. Recycling and waste reduction plan must be filled out before permit issuance. The Building department verifies compliance. Fines or jail is the penalty provision.

- **City of Burlingame:** C&D ordinance requires 60 percent debris diversion. Recycling and waste reduction form must be submitted.
- **City of Colma:** C&D ordinance requires 50 percent debris diversion for construction and remodeling, and for demolition 50 percent including concrete and asphalt and 15 percent excluding concrete and asphalt. Deposit and recycling and waste reduction form must be submitted. Fines or jail is the penalty provision.
- **City of Dublin:** C&D ordinance adopted from the county model, requires 50 percent recycled. As a penalty provision applicants will not receive back bond deposit.
- **City of East Palo Alto:** C&D ordinance requires 60 percent diversion for demolition projects, and 55 percent for all new construction. The Public Works department verifies compliance. Deposit and recycling and waste reduction form must be submitted. Fines or jail is the penalty provision.
- **City of Half Moon Bay:** C&D ordinance requires any construction project valued greater than \$5,000 to meet with a City representative to fill out and evaluate a waste management plan.
- **City of Hayward:** C&D ordinance requires 50% debris recycled, 100% of asphalt, concrete and similar material recycled for all projects greater or equal to \$75,000. Compliance is a condition of approval for all building and/or demolition permits. The Public Works Director or designee verify compliance.
- **City of Lafayette:** C&D ordinance for all sectors requires 50 percent recycled. Agency staff verifies compliance.
- **City of Livermore:** C&D ordinance requires 50 percent construction debris recycled. The thresholds are \$300,000 for construction or renovation, \$40,000 for demolition, and at \$1,000,000 a performance security is posted. The penalty is denial of building permit, certificate of occupancy and/or forfeit of Performance Security for non-compliance.
- **City of Menlo Park:** C&D ordinance requires at least 60 percent diversion for residential projects 1,000 sf or greater and commercial projects 5,000 sf or greater.
- **City of Millbrae:** Condition of approval for construction and demolition projects, requiring a waste management plan allocating 50 percent diversion. The City's Recycling Coordinator verifies compliance.
- **City of Novato:** C&D ordinance requires projects to recycle 50 percent and submit paperwork before permit approval. Agency staff, from the Building or Planning Department depending on stage, and applicant verify compliance. No approval as a penalty of non-conformance.
- **City of Oakland:** C&D ordinance requires 50 percent construction debris recycled. The threshold is \$50,000. Applicants must post submit a Waste Reduction and Recycling Plan. Agency staff from the planning commission

- verifies compliance. The penalty for non-conformance is a denial of building or demolition permit or final inspection/certificate of occupancy for non-compliance; City retains right to inspect and monitor projects and validate information.
- **City of Orinda:** C&D ordinance requires 50 percent construction debris recycled. The minimum building size is construction affecting 11,000sf of building area, or \$50,000 or greater building value. Applicants must post a deposit of 2 percent of project cost. Agency staff from the planning commission verifies compliance. If applicant fails to adhere, then project loses deposit.
 - **City of Palo Alto:** C&D ordinance requirements apply to all residential and commercial projects. Threshold applies to approximately 500 permits per year. Ordinance covers all demolitions, plus all other projects with valuation of \$75,000 or more. Requires salvage for reuse, recycling 90 percent of inert materials and 50 percent of remaining materials. Penalties for non-compliance begin at \$1,000 per violation. No citations issued to date.
 - **City of San Carlos:** C&D ordinance requires 60 percent diversion for all projects equal or greater to \$10,000. A waste management plan must be submitted. Fines or jail is the penalty provision.
 - **City of San Jose:** C&D ordinance requires a deposit dependant on size of project. If 50 percent of debris is recycled than the applicant can apply to collect a full deposit refund. Agency staff, from Environmental Services department, and the applicant verify compliance. No refund is the penalty provision.
 - **City of San Leandro:** C&D ordinance requires permit applicants to recycle all asphalt and concrete and at least 50 percent of all materials from projects that are valued over \$100,000. Agency staff, from Solid Waste and Recycling, and applicant verify compliance. The city can withhold issuing future permits if the contractor has not complied in previous cases.
 - **City of San Mateo:** C&D ordinance requires a deposit payment dependant on size of project. If 60 percent of debris is recycled than the applicant will collect a full deposit refund. 60 percent for cover projects, 50 percent for alteration projects over 50,000 dollars value. Agency staff, from Public Works, and applicant verify compliance. The penalty provision is no refund.
 - **City of Union City:** C&D ordinance requires a Waste Management Plan be submitted with the project application. All covered projects with total costs greater than or equal to \$100,000 must comply. Residential remodels and projects which increase the square footage of the building by 50 percent or more must also comply. Agency staff from Economic and Community Development department verifies compliance. There are provisions for performance bonds and reporting requirements.
 - **County of Alameda:** C&D ordinance requires 50 percent recycled for County Projects and Traditional Public Works Projects, and 75 percent of asphalt, concrete and similar material for Traditional Public Works Projects only.

- Compliance required for all County projects and traditional public works projects greater or equal to \$100,000 in construction and County projects over \$25,000 in demolition. Compliance is a condition of approval for all building and/or demolition permits. Director of General Services verifies compliance.
- **County of Contra Costa:** C&D ordinance requires projects over 5,000 square feet to complete 50 percent diversion. Agency staff and applicant verify compliance. No permit is the penalty provision.
 - **County of San Mateo:** C&D ordinance requires projects over \$5000 of demolition, over \$250,000 in building, or equal to or greater than 2000 sq ft. to recycle 100 percent of inert and 50 percent of all remaining materials. Agency staff and applicant verify compliance. The penalty provisions is a delay in occupancy approval.
 - **County of Marin:** C&D ordinance requires 50 percent recycled, itemized by weight or volume, and disposed at approved facilities. Permit holders provide proof of compliance by submitting copies of disposal receipts to Community Development Agency staff. A hold on the final permit is the penalty provision.
 - **County of Santa Cruz:** C&D ordinance requires 50 percent of curbside recycling and banning recyclable construction materials from waste disposal areas. No data for penalty provisions.
 - **Oro Loma Sanitary District:** C&D ordinance requires 50 percent waste recycled and 100 percent of asphalt, concrete and similar material, for all construction projects greater or equal to the value of \$100,000 and demolition projects of greater or equal value to \$40,000. District's Authorized Representative verifies compliance.
 - **Town of Hillsborough:** Waste Reduction resolution requires all building and demolition permits to submit a waste reduction plan to be approved by the Director of Public Works.
 - **Town of Portola Valley:** C&D ordinance requires projects over \$10,000 in value or 1,000sf involved, to recycle 60 percent. Agency staff, from the Planning department, and the applicant verify compliance. The applicant will not receive back bond deposit.
 - **Town of Woodside:** C&D ordinance requires 60 percent diversion for projects greater or equal to \$5,000. A waste management plan must be submitted to the department of Building and Planning.